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Masaaki Nakayama

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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/812,304  
Filing Date: March 30, 2004  
Appellant(s): NAKAYAMA ET AL.

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Alan M. Kagen  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/19/2010 appealing from the Office action mailed 5/5/2009.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The amendment after final rejection filed on 8/5/2009 has been entered.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 22, 24 and 25 are rejected under 35 U.S.C. 103(a) as obvious over Kaiser et al. (US20030181302A1) in view of Ohshima et al. (US 5,763,345).

As applied to claims 10 and 25, Kaiser et al. teach a disc roll comprising: a plurality of annular disc members 29 each defining a hole and having a peripheral surface; and a rotary shaft 17 fitted into the holes of said annular disc members 29 by insertion, whereby the peripheral surfaces of said disc members serve as a conveying surface of the disc roll, wherein said disc members 29 comprise an inorganic fiber, mica and a clay (paragraph [0010], last three lines). Kaiser et al. teach the inorganic fiber and clay are present in the claimed ranges (see paragraph [0056], last three lines) and mica is present in the claimed range (see paragraph [0056], last three lines).

However, Kaiser et al. do not explicitly teach that the clay has particles with a particle size of 5  $\mu\text{m}$  or larger of not higher than 30% by weight based on the weight of the clay and that clay being elutriated (claim 10) and the claimed impurity content of 10% or less (claim 25).

Ohshima et al. teach that it is well known in the art for natural clay to contain an average particle size of 0.5  $\mu\text{m}$  after purification by elutriation (col. 1, lines 27-28 & 35-36) and that clay should ideally have a high degree of plasticity and be free of impurities to provide high precision forming of complicated shapes (col. 1, lines 21-25).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided the invention of Kaiser et al. with elutriated natural clay having an average particle size of 0.5  $\mu\text{m}$ , and a clay free of impurities (within the claimed range of 10% by weight or less) as taught by Ohshima et al., in order to form a high precision disc roll comprised of desired and suitable material content.

Note that Ohshima et al. teach that, in general, finer clay particles result in smooth mobility, uniform molding density, and a minimum deformation due to drying and firing (col. 2, lines 29-35).

Furthermore, Ohshima et al.'s explicit teaching of clay content of particles with an average particle size of 0.5  $\mu\text{m}$  makes it mathematically impossible to have clay content of particles with a particle size of 5  $\mu\text{m}$  or larger in an amount of 30% or higher by weight based on the weight of the clay.

In addition, the Appellant seems to see no criticality in the claimed content of the impurities of 10% and is disclosing a wide range of embodiments wherein the clay has a

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content of impurities of 10% by weight or less, 5% by weight or less and more preferably of 1% by weight or less based on the weight of the clay (specification, page 20, first paragraph).

As such, finding the exact impurity content of the clay would have been obvious to one of ordinary skill in the art at the time of invention as matter of design choice, since the Appellant has not disclosed that only the claimed content range would provide any benefits and is done for any particular reasons and as a matter of fact, the Appellant discloses that the invention would equally perform well with either content of impurities of 10%, 5% , 1% or for that matter the range taught by Kaiser et al./Oshima et al. as discussed above.

As applied to claim 22, Kaiser et al./Oshima et al. teach the invention cited. Kaiser et al. further teach that the clay is present in the range of 40-50% (see paragraph [0056], last three lines) which overlaps the claimed range of 30 to 40%.

As applied to claim 24, Kaiser et al./Oshima et al. teach the invention cited above including the clay with particle size of 0.5  $\mu\text{m}$  or larger not higher than 30% by weight based on the weight of the clay but does not explicitly teach the claimed range of not higher than 15%.

However, the Appellant seems to see no criticality in the claimed content of the particle size of 5  $\mu\text{m}$  or larger and is disclosing a wide range of embodiments wherein the clay has a content of particles with a particle size of 5  $\mu\text{m}$  or larger not higher than

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**30%** in claim 10, not higher than **15%** in claim 24, not higher than **10%** and most suitably containing **no particle component** having a particle size of 5  $\mu\text{m}$  or larger (specification, page 19, first paragraph).

As such, finding the exact clay content of particle size of 5  $\mu\text{m}$  or larger would have been obvious to one of ordinary skill in the art at the time of invention as matter of design choice, since the Appellant has not disclosed that only the claimed particle range would provide any benefits and is done for any particular reasons and as a matter of fact, the Appellant discloses that the invention would equally perform well with either not higher than 30%, not higher than 15%, not higher than 10%, 0% or for that matter the range taught by Kaiser et al./Ohshima et al. as discussed above.

Claims 11 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaiser et al. in view of Ohshima et al., as applied to claim 10 and further in view of Asaumi et al. (US 4,533,581).

Kaiser et al./Ohshima et al. teach the invention cited above with the exception of the mica being muscovite and the claimed particle size range.

Asaumi et al. teach that it is known to use muscovite mica with size distribution of 10 to 100  $\mu\text{m}$  in disc rollers (col. 2, lines 17-22).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided the invention of Kaiser et al./Ohshima et al. with muscovite including the claimed particle size range, in light of the teachings of Asaumi

et al., in order to provide a disc roll having an excellent heat resistance property as suggested by Asaumi et al.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaiser et al. in view of Ohshima et al., as applied to claim 10 and further in view of Yoshida et al. (US 4,533,968).

Kaiser et al./Ohshima et al. teach the invention cited above with the exception of the clay being kibushi clay.

Yoshida et al. teach that it is known to use binding clays such as Kibushi clay in order to improve the binding and thus increasing the mechanical strength of the formed article (col. 2, lines 58-650).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided the invention of Kaiser et al./Ohshima et al. with Kibushi clay, in light of the teachings of Yoshida et al., in order to provide a disc roll having an improved plasticity during the forming and increase mechanical strength as suggested by Yoshida et al.

#### **(10) Response to Argument**

As for the rejection of independent claim 10 and dependent claims 11 and 22-26, Appellants mainly argue (Appeal Brief, Arguments, part 1, pages 10-12) that the "clay with specific particle diameter distribution (70% by weight or more of the particle size of 5  $\mu$ m or smaller) and clay content in an amount of 20-40%" as recited in independent



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claim 10 is a critical parameter that would obtain superior results and that Appellant has provided this criticality in the claimed range by evidence of surprising and unexpected results as shown with reference to Examples 3B (to establish the lower limit of 20%) and Examples 4B and 5B (to establish the intermediate and maximum limits of 30% and 40%).

Appellants further argue that the maximum amount of specific clay at 40% by weight is a critical parameter that prevents damage to the plate glass while maintaining good wear resistance (Appeal Brief, Arguments, part 1, page 11, paragraph 2). In addition, Appellants argue that the Examiner (Response to Arguments, Office Action mailed 5/5/2009) has erred in stating that the Appellants specification discloses a wide range for each claimed "content range" within which the invention would still perform equally well. In support of this assertion, Appellants refer to Example 6B wherein the clay content was merely changed to 50% which increased the plate glass susceptibility to damage and wear resistance.

The Examiner respectfully disagrees with the above arguments. Note that the Appellants throughout the long prosecution history from originally filed claims on 3/30/2004 through several claim amendments filed on 2/27/2007, 8/10/2007, 8/5/2008 and 9/12/2008 had maintained pending claims wherein the content of the clay present in the disc members was in an amount of 5 to 55% by weight based on the total weight of said disc members (i.e. claims 12 and 18). It wasn't until the claim amendment filed on

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1/30/2009 that Appellants decided to cancel claim 12 and amend independent claim 10 to include the "critical" claimed range of 20-40%. Therefore, it is not clear how in the span of 4 1/2 years of prosecution history the critical range of clay content had stayed at 5 to 55% by weight and only in the last six months the criticality has changed to 20 to 40% by weight?

Furthermore, the Appellants, in Table 1, show that the highest rating mark of "Excellent" is given only to the Examples 4B and 5B for all the three categories of "Wear Resistance", "Followability to Shaft" and "Overall Evaluation." Note that the lower limit of clay content of 20% was only granted one "Excellent" mark for "Followability to Sheet" and two "Good" marks for "Wear Resistance" and "Overall Evaluation." As such, Appellants are asserting that Example 6B (with clay content of 50%) resulting in scratches (2 scratches per 1 square meter of the surface) or other damage to the glass while receiving "Excellent" marks in the categories of "Wear Resistance" and "Followability to Shaft" and a 'Good" mark in the "Overall Evaluation" is more undesirable than Example 3B with less favorable ratings. One would think that the lower limit of 20% should receive a higher rating than the 50% limit.

With regards to claims 22, 24 and 25, Appellants (Appeal Brief, Arguments, part 1, page 12, paragraph 2) only argue that by virtue of their dependencies to allowable independent claim, an in case of claims 24 and 25, it is not mathematically impossible in

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Ohshima to have clay contents of particles with claimed particle sizes but fail to provide any additional evidence to support this assertion.

In response to appellants argument (Appeal Brief, Arguments, part 1, page 12, paragraphs 3 and 4) that “in practical application, it is important that the scratches in the glass be almost entirely eliminated” and asserting that even one glass scratch imposes a great burden on the manufacturers and that “Though the “wear resistance” is an important evaluation item, it is not as important as characteristics that could result in a scratch,” note that these features upon which the Appellant rely are not recited in the rejected claims(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With regards to dependent claims 11, 23 and 26, Appellants (Appeal Brief, Arguments, part 2, page 13) only argue that by virtue of their dependencies to allowable independent claim, they should be allowable but fail to provide any additional evidence to support this assertion.

In view of the above, the rejection of claims 10, 11, and 22-26 as being obvious over Kaiser et al. and in view of Ohshima et al. Asaumi et al. and Yoshida et al. is still valid and maintained.

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**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/SARANG AFZALI/

Examiner, Art Unit 3726

2/13/2010

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